

PULL OUT TEST REPORT

Upat

Date 20 November

Location Upat offices

Test by K.Owen

Test Conditions Indoors

Time of Test 15h00

Substrate Lightweight concrete

Position N/A

Edge Distance N/A

Anchors Tested* Fischer aircrete fixings - GB 10; FTP K6; FTP K 10

Persons Present

* All anchors installed to manufacturers specifications

Results

Number	Description	Tensile Load (kN)	Ultimate Load	Failure Method	Comment
1	GB10		30kg	Pullout	
2	GB 10		35kg	Pullout	
3	FTP K 6		30kg	Pullout	
4	FTP K 6		32kg	Pullout	
5	FTP K 10		150kg	Pullout	
6	FTP K 10		145kg	Pullout	

Sketch

The objective of the test was to determine the failure loads of the fixings in question in lightweight concrete supplied by ARUBA. All anchors were loaded to failure

Report By



K.Owen Pr Eng

2014/11/24 10:08
Date

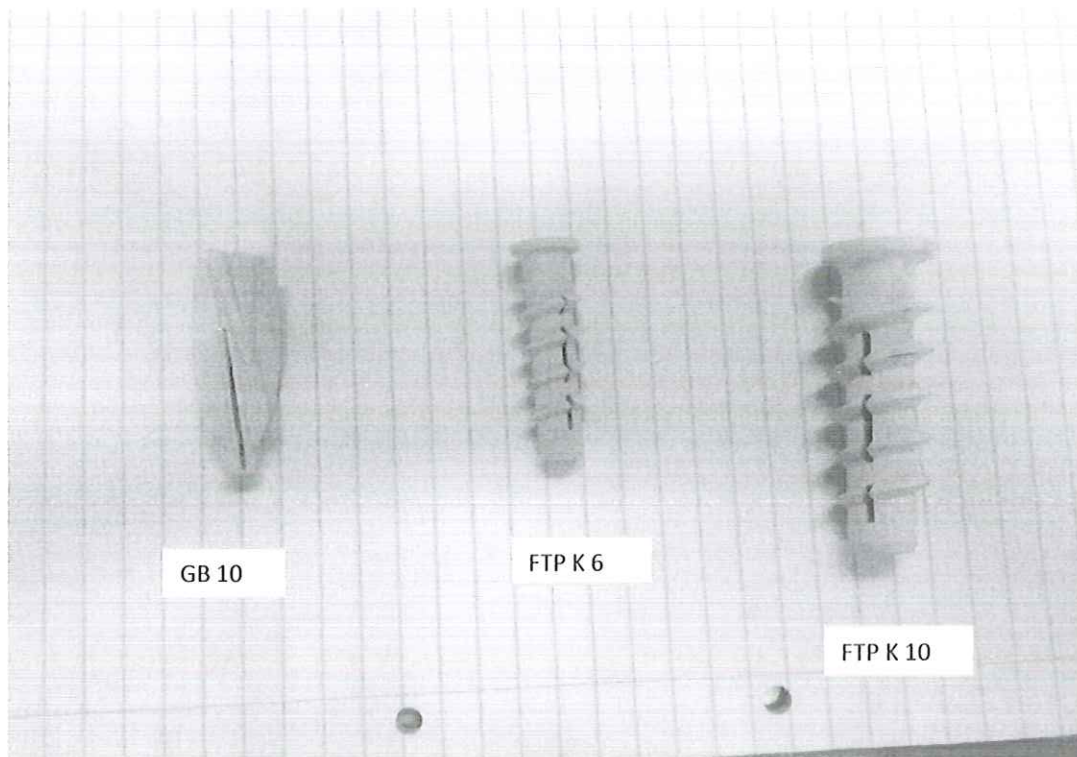


Figure 1 - Samples of anchors tested

ARUBA

ICF

INSULATED CONCRETE FORMS

DESCRIPTION	QTY	UNIT(R)	UNIT	TOTAL
AIR				
FTP K 4	1	2.65	EA	2.65
FTP K 6	1	3.8	EA	3.8
FTP K 8	1	6	EA	6
FTP K 10	1	8.36	EA	8.36
SEA				
FTP K 4	1	2.07	EA	2.07
FTP K 6	1	2.98	EA	2.98
FTP K 8	1	4.88	EA	4.88
FTP K 10	1	6.57	EA	6.57

PULL OUT TEST REPORT

Upat

Date 14 November 2014
Location Upat Head Office
Test by K.Owen
Test Conditions Indoors
Time of Test 10h30
Substrate Lightweight concrete supplied by ARUBA
Position N/A
Edge Distance N/A
Anchors Tested* 10mm threaded studs with FIS V injection mortar and embedded using Fischer undercut drill bit.
Persons Present K.Owen (Upat) R.Bankier (Upat)

* All anchors installed to manufacturers specifications

Results

Number	Description	Tensile Load (kN)	Ultimate Load	Failure Method	Comment
1	FIS V		2.8kN	Pullout	
2	FIS V		2.6kN	Pullout	
3	FIS V		2.8kN	Pullout	
4	FIS V		2.4kN	Pullout	
5	FIS V		2.5kN	Pullout	
6	FIS V		2.6kN	Pullout	

Sketch

The objective of the test was to measure the failure loads of threaded studs embedded into lightweight concrete using Fischer FIS V injection mortar and an undercut drill bit.

A video clip of the process was made and is available on request. It is too big to send by email.

In each case material failure was recorded at around 2.5kN (250kg) and the limiting factor is definitely the strength of the lightweight concrete. The same system used in conventional concrete will result in failure loads exceeding 30kN.

Report By



K.Owen Pr Eng

2014/11/18 10:51
Date

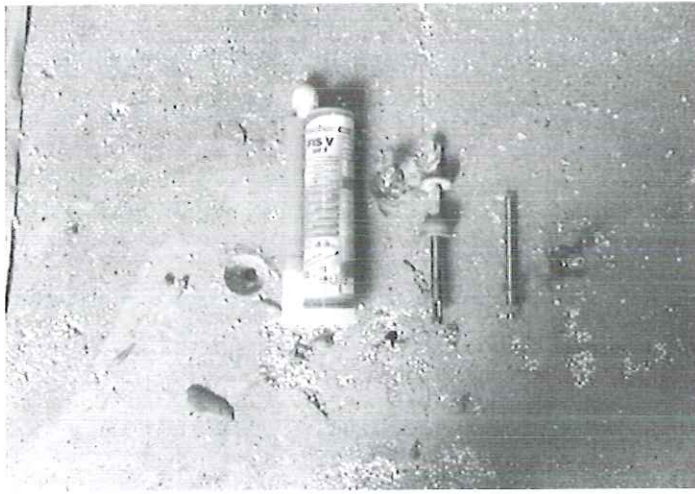


Figure 1 - Test
equipment

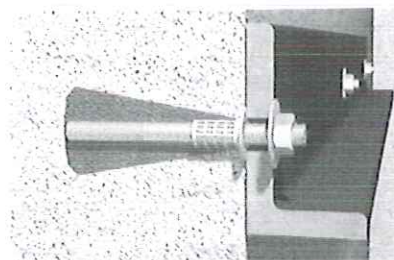


Figure 2 - load
tester

Secure hold in aerated concrete using undercut technology



Canopies



Detail: Undercut drillhole in aerated concrete

VERSIONS

- zinc-plated steel
- stainless steel

BUILDING MATERIALS

Approved for:

- Reinforced roof and ceiling boards made of aerated concrete (DIBt)
- Aerated concrete blocks
- Prefabricated reinforced and non-reinforced wall components made of aerated concrete

APPROVALS



ADVANTAGES

- The cone-shaped drill hole guarantees maximum load-bearing capacity in aerated concrete thanks to the interlock.
- The centring sleeve PBZ fixes the anchor in the drill hole, thus also allowing for overhead installation.
- Two anchorage depths in combination with the threaded rod FIS A allow for the ideal adaptation to the load to be applied.
- The anchoring in cylindric drilled holes are approved and enables therefore fixing solutions in through facings.
- The internal threaded anchor FIS E allows for surface flush removal and reuse of the fixing point, and therefore offers the best possible flexibility.

APPLICATIONS

- Guard rails
- Consoles
- Gates
- Staircases
- Windows
- Façades
- Canopies
- Timber constructions
- Steel constructions
- Sun protection

FUNCTIONING

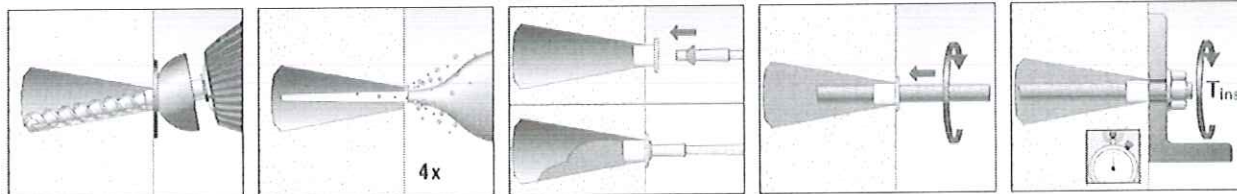
- Depending on application the system can be used with any of the injection mortars FIS V, FIS VT, FIS P Plus or FIS P can be used but do not have approvals.
- The injection system for aerated concrete is suitable for pre-positioned installation.
- The cone drill bit PBB allows for the drill hole and undercut to be made in one step by pivoting the drill.
- The mortar completely fills the undercut and transfers the load via the interlock.
- The drill hole is filled from the drill hole mouth using the centring sleeve PBZ.
- The threaded rod FIS A or the internal threaded anchor FIS E are set manually by turning lightly.

FOR USE WITH



FIS V mortar
see page 111

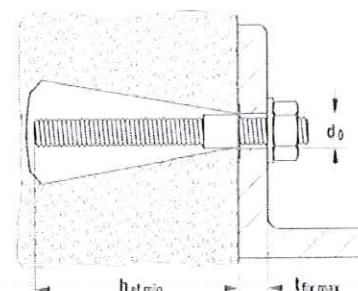
INSTALLATION



TECHNICAL DATA



Threaded rod FIS A



Item	zinc plated, steel grade 5.8	zinc plated, steel grade 8.8	stainless steel	Approval		Drill hole diame- ter in aerated concrete d_0 (mm)	Min. anchorage depth in aerated concrete $h_{el, min}$ (mm)	Max. useful length in aerated concrete $l_{fix, max}$ (mm)	Fill quantity for effect, anchoring depth in aerated concrete $l_{fix, max}$ (scale units)	Sales unit
	Art.-No.	Art.-No.	Art.-No.	ETA	DIBt					[pcs]
	gvz	gvz	A4							
FIS A M 8 x 90	090274	519390	090440	■	●	14	75	5	15	10
FIS A M 8 x 110	090275	519391	090441	■	●	14	75	25	15	10
FIS A M 8 x 130	090276	519392	090442	■	●	14	75	45	15	10
FIS A M 8 x 175	090277	519393	090443	■	●	14	75	90	15	10
FIS A M 10 x 110	090278	—	090444	■	●	14	75	25	15	10
FIS A M 10 x 130	090279	—	090447	■	●	14	75	45	15	10
FIS A M 10 x 150	090281	517935	090448	■	●	14	75	65	15	10
FIS A M 10 x 170	044969	519395	044973	■	●	14	75	85	15	10
FIS A M 10 x 190	—	517936	519420	■	●	14	75	—	15	10
FIS A M 10 x 200	090282	519396	090449	■	●	14	75	115	15	10
FIS A M 12 x 120	044971	519397	044974	■	●	14	75	30	15	10
FIS A M 12 x 140	090283	519398	090450	■	●	14	75	50	15	10
FIS A M 12 x 160	090284	517937	090451	■	●	14	75	70	15	10
FIS A M 12 x 180	090285	519399	090452	■	●	14	75	90	15	10
FIS A M 12 x 200	—	517938	519421	■	●	14	75	—	15	10
FIS A M 12 x 210	090286	—	090453	■	●	14	75	115	15	10
FIS A M 12 x 260	090287	—	090454	■	●	14	75	170	15	10

The anchoring of threaded rods M6 - M16 can also be made with a cylinder drilled hole. The minimum anchorage depth is 100 mm.